

APPENDIX C2

The prior arts related to the present invention includes Japanese Patent No. 3084681 C1 (referred to as "prior patent" hereinafter and in Appendices C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, and C13) by the present applicants and Japanese Patent Application No. 078270/2001 (referred to as, "prior patent application" hereinafter and in Appendices C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, and C13) by the present applicants.

The prior patent realizes, in an integrated information communication system as an IP packet transfer network adopting an IP encapsulation technique, an IP encapsulation technique, a technique of dynamically setting an address management table by IP-terminal request, and a method of acquiring an IP address by presenting a telephone number to a domain server to register the acquired address in a address management table. Meanwhile, the prior patent application discloses, in a terminal-to-terminal communication connection method using an IP packet transfer network, a simplified encapsulation technique, a method of applying the common channel signaling system onto an IP network, a method of carrying out multicast by registering a user's terminal-unit address into the network node unit, and so on.

Note that the prior patent or patent application uses the terms not the same as the terms used in the present invention. Accordingly, the terms used in the prior patent or patent application will be shown with parentheses in order to avoid confusion. For example, in the case of describing a network node unit (access control apparatus),

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the access control apparatus is a term used in the prior patent or patent application.

<<IP Encapsulation Technique>>

The IP encapsulation technique disclosed in the prior patent will be outlined with reference to Fig. 1. In this example, an external IP packet 13-1 is transferred from an IP terminal unit 12-1 having an external IP address "EA01" to an IP terminal unit 12-2 having an external IP address "EA02" via an IP network 11-1. A logic communication line 12-3 has an end(logic terminal) to be identified by a logic terminal identifier "Pin1" while a logic communication line 12-4 has an end to be identified by a logic terminal identifier "Pin2". The logic terminal "Pin1" is given with an internal IP address "IA01", and the logic terminal "Pin2" is given with an internal IP address "IA02". The network node unit 11-2, receiving an external IP packet 13-1, confirms that an internal IP address given to the logic terminal "Pin1" inputted by the IP packet 13-1 is "IA01" and a destination IP address of the IP packet 13-1 is "EA02", to search through the interior of an address management table 11-8. Searched are records including, first, a source internal IP address of "IA01" and, next, a destination external IP address of "EA02". Furthermore, inspection is made whether the detected record includes a source external IP address "EA01" of within the IP packet 13-1. In the present example, this is a record including "Pin1, IA01, IA02, EA01, EA02" on a second line from above. Using the IP addresses "IA01" and "IA02" of the record, an IP packet 13-2 is formed(IP packet encapsulation).

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The internal IP packet 13-2 passes through routers 11-4, 11-5, 11-6 to reach a network node unit 11-3. The network node unit 11-2 removes the received internal IP packet 13-2 of an IP header(IP packet decapsulation) and forwards an obtained external IP packet 13-3 onto a communication line 12-4. An IP terminal unit 12-3 receives the external IP packet 13-3. The fist-lined record "Pin1, IA01, IA81, EA01, EA81" of an address management table 11-8 is used to encapsulate an external IP packet directed toward a server 11-7 having an external IP address "EA81" and an internal IP address "IA81". By changing a destination external IP address of an external IP packet inputted at the same logic terminal(terminal end of a logic communication line 12-3) to "EA01", "EA81" or so, the destination where the external IP packet is to reach can be changed. Note that the mask technique in IP encapsulation is known, e.g. explained in Fig. 362 of the prior patent application.